

**Dr. Duke's Phytochemical and Ethnobotanical Database**

**Chemicals Found in *Crataegus laevigata***

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
30	(+)-CATECHIN	Flower	--	--		
30	(+)-CATECHIN	Leaf	--	--		
30	(+)-CATECHIN	Tissue Culture	--	--		
30	(+)-CATECHIN	Bud	--	--		
30	(+)-CATECHIN	Plant	--	--		Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.
38	(-)-EPICATECHIN	Fruit	--	--		
38	(-)-EPICATECHIN	Flower	--	--		
38	(-)-EPICATECHIN	Leaf	--	--		
38	(-)-EPICATECHIN	Shoot	--	--		
38	(-)-EPICATECHIN	Bud	--	--		
38	(-)-EPICATECHIN	Plant	--	--		Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.
15	5-HYDROXYTRYPTAMINE	Shoot	--	--		
19	ACETYL-CHOLINE	Leaf	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
19	ACETYL-CHOLINE	Plant	--	--		Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.
11	ADENINE	Plant	--	--		Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.
11	ADENINE	Leaf	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
28	ADENOSINE	Plant	--	--		Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.
28	ADENOSINE	Leaf	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
33	AESCULIN	Shoot	--	--		
33	AESCULIN	Fruit	--	--		Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.
5	ALUMINUM	Fruit	8	29	-0.21508468192276714	
8	AMYGDALIN	Leaf	1500	1500	-0.7071067811865472	List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
101	APIGENIN	Fruit	--	--		Newall, C. A., Anderson, L. A. and Phillipson, J. D. 1996. Herbal Medicine - A Guide for Health-care Professionals. The Pharmaceutical Press, London. 296pp.
101	APIGENIN	Leaf	--	--		

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
101	APIGENIN	Bud	--	--		
112	ASCORBIC-ACID	Fruit	24	85	-0.2792039610917021	
112	ASCORBIC-ACID	Leaf	166.4	1800	-0.27690303367535113	
53	BETA-CAROTENE	Fruit	1.4	5	-0.14113571921676207	
1	BETA-PHENETHYLAMINE	Plant	--	--		Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.
1	BETA-PHENETHYLAMINE	Fruit	--	--		Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.
1	BETA-PHENETHYLAMINE	Flower	--	--		
47	BETA-SITOSTEROL	Flower	6500	7800	0.9253646230843826	List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
47	BETA-SITOSTEROL	Leaf	5100	6200	2.2672781336507843	List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
3	CADMIUM	Flower	--	--		
3	CADMIUM	Fruit	--	--		
102	CAFFEIC-ACID	Shoot	--	--		
102	CAFFEIC-ACID	Leaf	--	--		
102	CAFFEIC-ACID	Bud	--	--		

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
102	CAFFEIC-ACID	Plant	--	--		Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.
102	CAFFEIC-ACID	Flower	--	--		
28	CALCIUM	Fruit	1554	5570	0.3954571881842723	
43	CATECHIN	Fruit	--	--		Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.
77	CHLOROGENIC-ACID	Bark	--	--		
77	CHLOROGENIC-ACID	Bud	--	--		
77	CHLOROGENIC-ACID	Plant	--	--		
77	CHLOROGENIC-ACID	Flower	--	--		
77	CHLOROGENIC-ACID	Fruit	--	--		
77	CHLOROGENIC-ACID	Leaf	--	--		
77	CHLOROGENIC-ACID	Shoot	--	--		
20	CHOLINE	Fruit	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
20	CHOLINE	Leaf	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
20	CHOLINE	Plant	--	--		Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
24	CHROMIUM	Fruit	0.5	1.7	-0.26885440473667177	
23	CITRIC-ACID	Fruit	--	--		Chemical Constituents of Oriental Herbs (3 diff. books)
2	COBALT	Fruit	0.6	2	-0.292996698999909336	
12	COPPER	Flower	--	--		
12	COPPER	Fruit	--	--		
3	CYNAROSIDE	Flower	--	--		
3	CYNAROSIDE	Leaf	--	--		
2	DIMETHYL-AMINE	Plant	--	--		Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.
2	DIMETHYL-AMINE	Leaf	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
20	DOPAMINE	Shoot	--	--		
40	EPICATECHIN	Leaf	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
40	EPICATECHIN	Plant	--	--		Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.
11	EPINEPHRINE	Leaf	--	--		
11	EPINEPHRINE	Flower	--	--		
29	ESCULIN	Fruit	--	--		

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
29	ESCULIN	Bark	--	--		Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
15	FIBER	Fruit	108000	108000	-0.31778652128419577	Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.
7	GLUCOSE	Fruit	--	--		Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.
1	GUANINE	Leaf	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
1	GUANINE	Plant	--	--		Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.
30	HYPEROSIDE	Shoot	--	--		
30	HYPEROSIDE	Leaf	--	--		
30	HYPEROSIDE	Plant	--	10000	-0.707106781186548	
30	HYPEROSIDE	Bark	--	--		
30	HYPEROSIDE	Fruit	--	--		
30	HYPEROSIDE	Branches	--	--		
30	HYPEROSIDE	Flower	--	--		
6	IRON	Fruit	--	--		
7	LAURIC-ACID	Fruit	--	--		Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
27	LINOLEIC-ACID	Fruit	--	--		Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.
21	LUPEOL	Bark	--	--		
78	LUTEOLIN	Bud	--	--		
78	LUTEOLIN	Fruit	--	--		Newall, C. A., Anderson, L. A. and Phillipson, J. D. 1996. Herbal Medicine - A Guide for Health-care Professionals. The Pharmaceutical Press, London. 296pp.
78	LUTEOLIN	Leaf	--	--		
65	MAGNESIUM	Fruit	262	940	-0.5509172813412117	
14	MANGANESE	Flower	--	--		
14	MANGANESE	Fruit	0.4	1.4	-0.39430607258501055	
6	MASLINIC-ACID	Shoot	--	--		
39	NIACIN	Fruit	--	--		
64	OLEANOLIC-ACID	Plant	--	--		Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.
25	OPC	Shoot	10000	30000		Bisset, N.G., ed. 1994. Herbal Drugs and Phytopharmaceuticals. CRC Press. Boca Raton, FL. 566 pp.
9	OXALIC-ACID	Fruit	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
9	OXALIC-ACID	Bark	--	--		

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
13	PALMITIC-ACID	Fruit	--	--		Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.
13	PALMITIC-ACID	Bark	--	--		
24	PECTIN	Leaf	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
4	PHOSPHORUS	Fruit	405	1450	-0.5364028420241324	
14	POTASSIUM	Fruit	3069	11000	-0.6119284601203993	
34	PROANTHOCYANIDINS	Plant	--	--		Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.
11	PROCYANIDIN	Fruit	--	--		Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.
11	PROCYANIDIN	Leaf	--	--		
1	PROCYANIDIN-B-2	Fruit	--	--		
1	PROCYANIDIN-B-2	Flower	--	--		
4	PROCYANIDIN-B-4	Flower	--	--		
6	PYCNOGENOL	Shoot	10000	30000		Bisset, N.G., ed. 1994. Herbal Drugs and Phytopharmaceuticals. CRC Press. Boca Raton, FL. 566 pp.
176	QUERCETIN	Flower	--	--		
176	QUERCETIN	Plant	--	--		Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
176	QUERCETIN	Shoot	--	--		
44	QUERCITRIN	Leaf	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
15	RIBOFLAVIN	Fruit	--	--		
87	RUTIN	Plant	--	--		
87	RUTIN	Leaf	--	--		
87	RUTIN	Flower	--	--		
87	RUTIN	Bud	--	--		
5	SAPONINS	Fruit	--	--		Newall, C. A., Anderson, L. A. and Phillipson, J. D. 1996. Herbal Medicine - A Guide for Health-care Professionals. The Pharmaceutical Press, London. 296pp.
60	SELENIUM	Fruit	0.6	2	0.10976555089417979	
4	SILICON	Fruit	--	--		
1	SODIUM	Fruit	15	55	-0.17873519822623876	
11	SORBITOL	Leaf	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
4	SPIRAEOSIDE	Leaf	--	--		Bisset, N.G., ed. 1994. Herbal Drugs and Phytopharmaceuticals. CRC Press. Boca Raton, FL. 566 pp.
5	STARCH	Fruit	41850	180000	-0.18166262454346976	
8	STEARIC-ACID	Bark	--	--		

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
14	SUCROSE	Bark	--	--		
6	TARTARIC-ACID	Bark	--	--		
6	TARTARIC-ACID	Fruit	--	--		Chemical Constituents of Oriental Herbs (3 diff. books)
31	THIAMIN	Fruit	--	--		Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.
4	TIN	Fruit	3.6	13	-0.3261703903199725	
1	TRIMETHYLAMINE	Plant	--	--		Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.
1	TRIMETHYLAMINE	Leaf	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
11	TYRAMINE	Plant	--	--		Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.
11	TYRAMINE	Fruit	--	--		Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.
11	TYRAMINE	Flower	--	--		
89	URSOLIC-ACID	Plant	--	--		Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.
89	URSOLIC-ACID	Leaf	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
89	URSOLIC-ACID	Shoot	--	--		

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
18	VITEXIN	Fruit	--	--		
18	VITEXIN	Flower	--	--		
18	VITEXIN	Branches	--	--		
18	VITEXIN	Shoot	--	--		
18	VITEXIN	Leaf	--	--		
18	VITEXIN	Bark	--	--		
18	VITEXIN	Plant	--	--		Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.
1	VITEXIN-2''-O-ALPHA-L-RHAMNOSIDE	Plant	--	--		
1	VITEXIN-2'-O-RHAMNOSIDE	Flower	--	--		
77	ZINC	Fruit	--	--		
77	ZINC	Flower	--	--		